



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Percival

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For: **Method and System for Coherently Caching** Date: April 14, 2005  
**I/O Devices Across a Network**

**DECLARATION OF ERIC DICKMAN**

I, Eric Dickman, hereby declare and state that:

1. I am the Chief Executive Officer of SuperSpeed Software, Inc. (formerly known as EEC Systems, Inc.), the assignee of the above-identified patent application.
2. The inventor, Ian Percival, developed the invention of the above-identified patent application for assignee, EEC Systems. The invention made it possible for the EEC SuperCache program to be used on networks of computers. There were only three locations outside of EEC authorized to use the SuperCache program on a network of computers prior to the critical date of May 6, 1993 (one year prior to the May 6, 1994 priority date). These locations were used by EEC to test the invention in different computer cluster environments before making it available to the public. The clusters owned by EEC were not sufficient in and of themselves to fully test the SuperCache program to know if it would work in other environments. Indeed, after tests in-house, there were numerous bugs in the program that were uncovered by testing at outside facilities.
3. The various test sites provided different computer environments for testing of the SuperCache software. Internally, in early 1993, EEC had two test clusters. One consisted of two MicroVAX III computers and two Alpha computers (AXP 150 & AXP 3500). The second cluster consisted of a VAX 6240, two MicroVAX III computers, and an Alpha 4000

computer (model 200, with 2 CPUs). Besides offering different computer hardware configurations and yet-to-be released hardware such as the VAX 7000 and the Alpha 7000, the external test sites also had yet-to-be released operating systems. Open VMS 6.0 for VAXs and Open VMS 1.5 for Alphas were in field test by DEC and were not available to the public until DEC released the new operating systems in June of 1993.

4. EDS had a cluster of multiple VAX 6000 series computers, and also another cluster of two uni-processor VAX4500 computers. EDS ran field test versions of VMS version 6.0 on its VAX 6000 series cluster after hours, as well as VMS 5.5-2 for VAX on that cluster. On the other cluster it was running newly developed field test V6.0 for VAX as well as VMS VAX V5.5-x. Testing was performed on both versions of the operating system.

5. Nemonix had a cluster of VAX 8600 computers, and an Alpha 3500 in a VMS cluster for testing the newly developed field test versions of VMS 6.0 for VAX computers, and VMS 1.5 for Alpha computers.

6. The inventor, Ian Percival, who worked for EEC Systems maintained strict control over these test installations by providing each installation with a temporary network license key. The network license key was further limited in that it was specific to a configuration of computers. It could not be moved for use on other computers because it was linked to the Ethernet addresses of the network. The program could not function on a network without the license key. The license key was required to let a user unlock the program for use on a network.

7. The old SuperCache V1.0 and V1.1 sought to cache computers in a network but did not work successfully in a network. In SuperCache V1.0 and V1.1, if a device was being cached on any node in the network, then invalidate messages would be sent to all nodes in the network. It was not until the inventor had completed SuperCache V1.2 for testing within EEC Systems that there was a caching program in which each disk had an invalidate list providing those nodes that permitted caching of that disk. Invalidates would only be sent to the remote nodes identified by the list.

8. Testing of SuperCache V1.2 began at EEC Systems November 5, 1992. Testing continued within EEC Systems in November, December and January. More rigorous testing was required in view of the demands that can be placed on the SuperCache program. Thus, in January 1993, the program was provided to EDS for more rigorous testing on its clusters of computers. Throughout January, February and March problems were identified and corrected. In March, a major problem was fixed that was causing data corruption. After this fix, the program was made available to DEC and Nemonix for additional field testing.

9. The primary test location outside of the EEC Systems facility was EDS in Waltham, MA. This was only a couple of towns over from EEC Systems in Sudbury, MA. In January 1993, EEC first brought over the SuperCache program to begin testing on the EDS cluster. EEC made frequent visits to the EDS facility to monitor the testing being performed on the EDS clusters licensed to operate the SuperCache software. As testing continued, SuperCache was repeatedly revised in an attempt to get it working satisfactorily. On February 8, 1993, a new revision of SuperCache V1.2-08 was shipped to EDS after an earlier version failed. Because the testing proceeded so actively under EEC's supervision, it eventually installed at EDS a perpetual license for use during the testing. EDS did not have access to the SuperCache source code. The testing proceeded after hours with the cooperation of EDS' principal consulting engineer, Chris Yetman. Whenever the system, including the SuperCache program crashed, or an error occurred, EDS did a system dump of all system memory onto tape. EEC personnel would pick up the tapes and bring them back to EEC for analysis to determine the cause of the error. These crash dumps resulted in a number of program fixes reported in the SuperCache release notes as set forth in the Declaration of Eric Dickman dated January 30, 1996 at paragraphs 18-22.

10. A major problem was fixed by changing cluster transition code in the SuperCache program. This resulted in SuperCache V1.2-10 issued on March 22, 1993. Additional sites were sought for further testing on different cluster configurations. Field test kits were provided to DEC and Nemonix. DEC was the manufacturer of the Alpha computers and the seller of the Open VMS AXP V1.5 Operating System for which SuperCache was intended

to work. The Alpha 7000 computer and its operating system were also merely in field tests at this time. The Open VMS Alpha V1.5 Operating System was not publicly released until June of 1993. DEC had these machines under field test and was able to test the SuperCache software in conjunction with the Alpha 7000 computer in the test cluster. The temporary license for use of the SuperCache program allowed a specific cluster within DEC's development lab to conduct tests on the SuperCache program. The license could not be transferred to any other computers outside of the secure DEC facility because it was linked to the Ethernet addresses of the cluster. DEC let its temporary license expire without following up with a purchase of the product for use on clusters.

11. Nemonix also had a cluster with a field test version of the Alpha VMS V1.5 Operating System, and VMS VAX V6.0 field test operating system. Upon testing the SuperCache program, a bug was identified at Nemonix and reported to EEC Systems. That bug was fixed in the April 1, 1993, SuperCache V 1.2-11 version of the software. Nemonix was a distributor of hardware and software who was anxious to sell the SuperCache software for networks. EEC, however, did not permit any sales until at earliest May 6, 1993. Nemonix made a sale to the Naval Undersea Warfare Center in Newport, RI on May 13, 1993.

12. A distributor in Holland wanted to sell the SuperCache program to a customer. An overnight package was sent out May 6 to Holland. On May 7, 1993, a license key for use on a stand alone computer was provided to the customer in Holland. Thereafter, on May 10, 1993, the foreign customer upgraded to a perpetual license key for SuperCache on a cluster. This resulted in the first revenue booked by EEC Systems for SuperCache for use in clusters. The SuperCache for clusters product was officially announced in the June 21, 1993 issue of Digital News & Review.

13. In early May 1993, Mr. Yetman of EDS informed EEC that he felt SuperCache was working properly in the tests on the clusters at EDS. In July 1993, EDS paid for yearly maintenance of earlier software products from EEC. At this time, EDS was given an

upgrade to SuperCache so that its clusters could make actual commercial use of the SuperCache program in clusters.

14. Even in May 1993, inventor, Ian Percival still had reservations about SuperCache for clusters. Another software vendor, Micro Technology Inc. ("MTI") of Anaheim, California, showed an interest in the SuperCache software. It was learned that MTI had a diagnostic program called Cache Diag that could further subject SuperCache to rigorous testing. MTI sent EEC Systems the Cache Diag program for use in continuing testing of SuperCache. Sure enough, an obscure race condition in the SuperCache for clusters program was identified and eventually fixed to produce SuperCache V1.3-00. Additional bug fixes were made to the SuperCache program. On September 3, 1993, SuperCache V1.3-00 was released. The inventor, Ian Percival, was finally confident in the operation of the SuperCache program on clusters.

15. The field test period of SuperCache for clusters was reasonably short for software. The field testing of the Digital Equipment Corp. VAX 6.0 operating system and the Alpha VMS V1.5 operating system, for example, was from November 1992 through June 1993.

16. When SuperCache programs were delivered to the field test sites, as was the custom, they were accompanied by a user guide and a license agreement. The license agreement reflected EEC's interest in maintaining restricted access. (See Declaration of Eric Dickman July 16, 1997, par.4-6 and Ex. A)

17. All of the testing facilities at EDS, DEC and Nemonix, were in private facilities that had reception areas to restrict entry into the building.

18. I hereby declare that all statements made herein from my own knowledge are true and all statements made on information and belief are true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both under Section 1001 of Title 18 of the United States Code and

that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

A handwritten signature in black ink, appearing to read "Eric Dickman", is written over a horizontal line.

Eric Dickman

Dated: April 12, 2005

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